Green Harmony T・H・A Systems

O_2Fighter

High Density Gas Dissolution Equipment

Global 100 Eco-Tech Awards

River & Lake Water Purification System

How do you dissolve oxygen in water ?

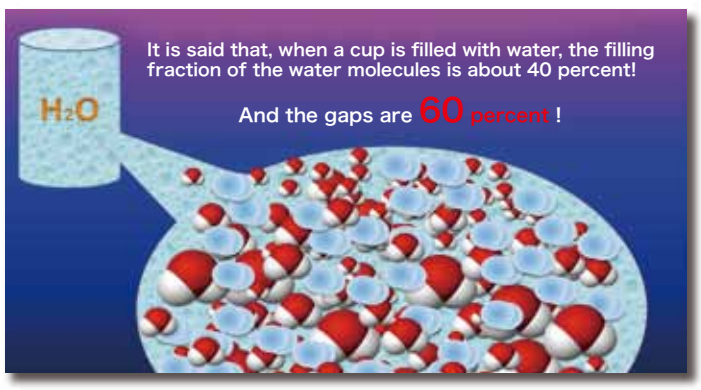
Isn't aeration in a "goldfish tank"! the method that comes to mind?
Aeration is the method of passing air through water, which is a technology in wide general use.
Today, much development of the technology is aimed at making the bubbles smaller. However, surprisingly, the point is often missed that it is because the gas is not dissolved in water that bubbles are formed no matter how small the bubbles are made to be. (Aeration is a technology that is safe to the eye.)

"NEW TECHNOLOGY"

Our dissolution technology was inspired by **"thinking in reverse"**: to pass water through gas, rather than gas through water. It utilizes the subtle difference between atmospheric pressure and the pressure inside the apparatus.
Hardly any bubbles are generated because the gas is almost completely dissolved. The efficiency of dissolution is nearly 100 percent with this technology.

There are gaps in water !

This property of water, of having gaps, is exploited to dissolve the gas.
In water, there is gas (air) that is originally dissolved in these gaps. This gas is replaced by another gas with the purpose of dissolution. This replacement dissolution technology has been made possible by the "high-concentration gas dissolver" apparatus.



This technology will overturn conventional wisdom!

Various gases (single elements) are dissolved in water.
O_2 (oxygen) O_3 (ozone) N_2 (nitrogen) H_2 (hydrogen) CO_2 (carbon dioxide) etc.!
For example, the air dissolved in water is replaced with pure oxygen or one of a variety of gases such as ozone, nitrogen, hydrogen and carbon dioxide.
The high-concentration gas dissolution technology is being utilized in various fields!

Examples of use

"Wastewater Treatment"

Dissolution of pure oxygen, not aeration with air! This alone makes the oxygen concentration about 4.8 times higher. Compared to aeration with air, the difference in dissolution capability would be 50~100 times under the same conditions. This high dissolution capability has made it possible to meet the requirements of wastewater treatment. In addition, remediation of foul odors and effects of reduction of sludge volume have also been found in wastewater treatment sites.

"Cleanup of Rivers and Lakes", "Measure Against Algae Bloom", "Measure Against Red Tide", "Measure Against Blue Tide"

Since the cause is the shortage of oxygen at the bottom of the water, the technology to increase the concentration of dissolved oxygen at the bottom of the water solves the problem.
In rivers and lakes with deposits of sludge, as well as in polluted seas, just by making the bottom of the water an oxygen-rich environment, an array of aerobic bacteria will promote the cleanup by decomposing the pollutants. Blooming of algae will be suppressed by eluting and decomposing nutrient salts.
This apparatus makes it possible to increase the concentration of dissolved oxygen at the bottom of the water, which was a difficult thing to do with conventional technology.

"Aquarium / Aquaculture"

Aerating bubbles get in the way of viewing by the visitors in an aquarium.
The use of this apparatus has made the technology friendly to both fish and visitor. It is also popular in aquaculture farms, where many fish are raised, for its power in solving the problem of shortages of dissolved oxygen caused by dense farming and by poor water quality.

"Hydroponic / Solution Culture"

Healthy crops are grown with high-concentration oxygenated water which provides the necessary oxygen to the roots and activates bacterial action.
Growth is promoted as a result of the activation of photosynthesis by using water with dissolved carbon dioxide.
The pH of the solution can be easily adjusted as well.

"Cleanup of Contaminated Soil"

Good results achieved by the cleaning effects of the combined use of high-concentration oxygenated water and soil bacteria as a measure to clean up soil contaminated by oil leakage is gaining attention both inside and outside Japan.

"Deodorization / Bleaching / Sterilization"

O_3 (ozone) does the job. No scent of ozone is released in the surroundings because it is almost completely dissolved in the water. It is possible to use ozone gas, which is harmful in a sense, safely and with high efficiency.
Solutions of more than ORP800mv and at concentrations higher than 5PPM can be obtained.

"CO_2 is a Natural Resource"

CO_2 is separated from such gases as chimney exhaust fumes or natural gas and dissolved in water. This helps the solution of such issues as the environmental problem, the food problem and the energy problem by its enhancing effects on the growth of plants and in the aquaculture of algae.

"Functional Water"

Replacement of oxygen in water with nitrogen …… prevents oxidation and putrefaction.
High-concentration hydrogenated water and oxygenated water are being used for such purposes as drinking water.
The pH is adjusted by dissolving carbon dioxide.

"Remediation of Foul Odors"

Organic matter in water is mineralized by the work of bacteria. An environment with an insufficient amount of dissolved oxygen becomes a domain in which anaerobic bacteria thrive, in which the organic matter is converted to such gases as ammonia, hydrogen sulfide and methyl mercaptan, generating foul odors. No foul odor is generated in a domain in which aerobic bacteria thrive in an environment with a sufficient amount of dissolved oxygen.

Remediation of foul odors and reduction of sludge volume

The high concentration O_3 dissolution deodorization, decolorization, and sterilization

Cleanup of Contaminated Soil

Drainage purification, bad smell improvement

Aquarium / Aquaculture

Purification of lake

Manufacture of functional water

Algal growth system display model

Hydrogen sulfide removal

Water quality improvement

Wastewater treatment

Pure oxygen cultivation

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